

Michigan Air Toxics System
Initial Threshold Screening Level (ITSL) / Initial Risk Screening Level (IRSL)
Toxics Screening Level Query Notes

Each note is applicable only to the chemical for which a corresponding number appears in the "Notes" column of the [Toxics Screening Level Query](#) results.

1. The **combined** ambient impact of all petroleum hydrocarbon materials with Note #1 cannot exceed the ITSL of 3500 $\mu\text{g}/\text{m}^3$ (8-hour average). If a chemical with this footnote has an ITSL other than 3,500 $\mu\text{g}/\text{m}^3$, the ambient impact for that chemical also cannot exceed the chemical specific ITSL.
2. The **combined** ambient impact of all forms of xylene with Note #2 cannot exceed the initial threshold screening level (ITSL) of 100 $\mu\text{g}/\text{m}^3$ (24-hour average).
3. These chemicals are very likely to meet the R 336.1103(c) definition of a carcinogen. The Air Quality Division has not evaluated the data to develop an IRSL/SRSL.
4. The **combined** ambient impact of all subtilisins cannot exceed the ITSL of 0.02 $\mu\text{g}/\text{m}^3$ (1-hour average).
5. The seven carcinogenic polycyclic aromatic hydrocarbons (PAHs) should be evaluated additively utilizing the [comparative potency estimates](#) approved by the Air Quality Division (AQD) Scientific Advisory Panel (July 20, 1995), compared to the screening level for benzo(a)pyrene (CAS#50-32-8).
6. The ITSL applies to pure tungsten carbide only. The ITSL for cemented tungsten carbide having a cobalt content >2%, based on the ITSL for cobalt, is 0.2 $\mu\text{g}/\text{m}^3$ based on an 8-hour averaging time. The IRSL for cemented tungsten carbide having a cobalt content <2% and a nickel content >0.3%, based on the IRSL for nickel, is 0.0042 $\mu\text{g}/\text{m}^3$, based on an annual averaging time.
7. The former ITSL of 0.3 $\mu\text{g}/\text{m}^3$ (24-hour average) only addressed exposure from direct inhalation. Due to the highly bioaccumulative nature of mercury, and potential exposure through other routes of exposure, emissions of mercury will be evaluated on a case-by-case basis. Because of the expected increased exposure via these indirect pathways, mercury emissions do not qualify for exemption from a [permit to install](#) under Rules 279 or 290.
8. Alternate screening levels may be determined on a case-by-case basis depending on the source of PCB emissions and which PCB isomers are being emitted following EPA's guidance as described in IRIS.
9. This chemical meets the definition of a carcinogen per R 336.1103(c), but risk management considerations indicate that no IRSL should be derived. The **combined** ambient impacts of sulfuric acid, sulfur trioxide, and oleum cannot exceed the ITSLs.
10. The **combined** ambient impact of these glycol ethers must be evaluated together so that their hazard index does not exceed a value of one.
11. The **combined** ambient impact of all petroleum hydrocarbon materials with Note #11 cannot exceed the ITSL of 50 $\mu\text{g}/\text{m}^3$ (8-hour average). If a chemical with this footnote has an ITSL other than 50 $\mu\text{g}/\text{m}^3$, the ambient impact for that chemical also cannot exceed the chemical specific ITSL.

12. The **combined** ambient impact of DDT; p,p'-DDE; and DDD that have Note #12 cannot exceed the IRSL of $0.01 \mu\text{g}/\text{m}^3$ (annual average) or SRS� of $0.1 \mu\text{g}/\text{m}^3$ (annual average).
13. This chemical has two ITSLs with different averaging times. Ambient air impacts cannot exceed either ITSL. Both ITSLs also apply for determinations of [permit to install](#) exemptions under R 336.1290 (Rule 290).
14. The **combined** ambient impacts for the isomers of trimethylbenzene, or any mixture thereof, cannot exceed the screening level(s).
15. The **combined** impact of t-butyl acetate and t-butanol must be evaluated together so that the hazard index does not exceed a value of one.
16. The asbestos IRSL and SRS� are based on a conservative conversion from the EPA-IRIS unit risk factor and one-in-one million cancer risk estimate of $4 \text{ E-}6$ fibers/mL (or $4 \text{ fibers}/\text{m}^3$), to the units of $\mu\text{g}/\text{m}^3$. Less restrictive screening levels may be derived on a case-by-case basis depending on the fiber density, as discussed in the EPA-IRIS database.
17. See specific trivalent and hexavalent chromium compounds.
18. The **combined** ambient impact of turpentine and monoterpenes (α-pinene, β-pinene, and d-carene) listed with Note #18 cannot exceed the ITSL of $1120 \mu\text{g}/\text{m}^3$ (8-hour averaging time).
19. If the 4,6-dimethyl-2-heptanone is present as a component of commercial or technical grade diisobutyl ketone or DIBK (CAS# 108-83-8), then the ITSL of $0.1 \mu\text{g}/\text{m}^3$ for 4,6-dimethyl-2-heptanone does not apply. In this case, the **combined** impacts of the 4,6-dimethyl-2-heptanone, and DIBK cannot exceed the screening level for DIBK of $1500 \mu\text{g}/\text{m}^3$ (8-hour average).
20. The **combined** ambient impact of meta- and para-tolualdehyde cannot exceed the ITSL of $440 \mu\text{g}/\text{m}^3$ (24-hour average).
21. This chemical is very likely to meet the R 336.1103(c) definition of a carcinogen. The Air Quality Division has evaluated the data and determined it to be inadequate for IRSL/SRS� development. However, the ITSL provides adequate protection against potential cancer effects.
22. The **combined** ambient impact of butane (CAS# 106-97-8) and isobutane (CAS# 75-28-5) should be evaluated together so that the **combined** impact does not exceed a hazard index value of one.
23. The **combined** ambient impact of all propylene glycol n-butyl ethers (CAS nos. 5131-66-8, 15821-83-7, 29387-86-8, and 63716-40-5) cannot exceed the ITSL of $77 \mu\text{g}/\text{m}^3$ (annual average).
24. The **combined** ambient impact of all chemicals with footnote #24 cannot exceed the ITSL of $93 \mu\text{g}/\text{m}^3$ (annual average).
25. The **combined** ambient impact of all chemicals with footnote #25 cannot exceed the ITSL of $5600 \mu\text{g}/\text{m}^3$ (24-hour average).
26. This toxic air contaminant (TAC) is reasonably anticipated to exist as a particle in the ambient air. A toxicological review has determined that, in lieu of setting a screening level, the primary NAAQS for particulate matter (PM) are reasonable and appropriate health protective levels for the particulate. The **combined** ambient impact of all particulate TAC emissions from the process must be below the applicable PM primary

NAAQS. The PM primary NAAQS may be used in [permit to install](#) exemption determinations for this TAC under Rule 290(a)(iii)(C).

27. The **combined** ambient impact of dimethyl adipate, dimethyl glutarate, and dimethyl succinate (collectively known as dibasic ester) cannot exceed the ITSL of 1 $\mu\text{g}/\text{m}^3$ with annual averaging time.
28. The **combined** ambient impact of all amorphous silica compounds with the CAS nos. 60676-86-0, 61790-53-2, 69012-64-2, 112945-52-5, and 112926-00-8 cannot exceed the ITSL of 60 $\mu\text{g}/\text{m}^3$ (8-hour averaging time).
29. The ITSL for manganese and manganese compounds is most appropriately applied to PM10-Mn data rather than TSP-Mn data.
30. The ITSL for mixed cresols (CAS# 1319-77-3) also applies to o-cresol (CAS# 95-48-7), p-cresol (CAS# 106-44-5), and m-cresol (CAS# 108-39-4).
31. Most processes that emit crystalline silica are exempt from the screening level requirement of Rule 225(1). Only sources of crystalline silica that are not exempt from the definition of a toxic air contaminant (see Rule 120(f)(XV)) need to comply with the ITSL.